

WHAT IS CLAIMED IS:

1. A fuel supply unit for an engine including at least one cylinder, the fuel supply unit comprising:

a fuel injector for injecting fuel into the cylinder, the fuel injector including a fuel inlet port and a lockable injector portion;

a fuel distribution pipe for distributing fuel to the injector, the fuel distribution pipe including a fuel outlet port communicated with the fuel inlet port of the injector so that the fuel is supplied from the fuel distribution pipe to the fuel injector through the fuel outlet port and the fuel inlet port; and

a detachment preventing means for preventing the fuel injector from detaching from the fuel distribution pipe, the detachment preventing means including an injector locking portion, which continuously extends around the fuel injector within a circumferential length of the fuel injector,

wherein the detachment preventing means is locked in the fuel outlet port, and a circumferential middle portion of the injector locking portion locks the lockable injector portion of the fuel injector so that the fuel inlet port should not be detached from the fuel outlet port when the fuel injector is shifted in a detaching direction thereof.

2. The fuel supply unit according to claim 1, wherein the lockable injector portion is formed in a circumferential

surface of the fuel injector and projects in a radial direction thereof.

3. The fuel supply unit according to claim 1, wherein the injector locking portion fit on a circumferential surface of the fuel injector, so that a diametrical shift of the fuel injector is restricted.

4. The fuel supply unit according to claim 1, wherein: the detachment preventing means includes two distribution pipe locking portions, each of which extends from a corresponding one of side portions of the injector locking portion toward the fuel outlet port, and which are disposed so that the fuel injector is intervening between the distribution pipe locking portions; and

each of the distribution pipe locking portions is locked in a circumference of the fuel outlet port in a diametrical direction thereof, so that the distribution pipe locking portions are locked in the fuel outlet port.

5. The fuel supply unit according to claim 4, wherein: the fuel outlet port includes two lockable projections, each of which projects in a corresponding radial direction thereof from an outer circumference thereof;

each one of the distribution pipe locking portions has a locking hole, in which the corresponding lockable projection fits;

each one of the lockable projections fits in the locking hole of the corresponding distribution pipe locking portion; and

both projection sides of each lockable projection are formed in parallel with the diametrical direction thereof or formed so that width of each lockable projection becomes larger in a radial direction thereof.

6. A fuel supply unit for an engine including a cylinder, the fuel supply unit comprising:

a fuel injector for injecting fuel into the cylinder, the fuel injector including a fuel inlet port;

a fuel distribution pipe for distributing fuel to the injector, the fuel distribution pipe including a fuel outlet port communicated with the fuel inlet port of the injector so that the fuel is supplied from the fuel distribution pipe to the fuel injector through the fuel outlet port and the fuel inlet port; and

a detachment preventing means, which is for preventing the fuel injector from detaching from the fuel distribution pipe and for locking the fuel distribution pipe and the fuel injector when the fuel injector is shifted in a detaching direction thereof from the fuel outlet port, and which includes a plurality of distribution pipe locking portions disposed around a circumference of the fuel outlet port, wherein each distribution pipe locking portion has a locking hole,

wherein the fuel outlet port includes a plurality of lockable projections for respectively engaging with the locking holes, each of which projects in a radial direction of the fuel outlet port from an outer circumference thereof; and

both sides of each lockable projection are in parallel with a diametrical direction of the fuel outlet port or formed so that width of each lockable projection gets larger in a radial direction thereof.

7. An assembling method of the fuel supply unit according to claim 4, the assembling method comprising steps of:

installing the fuel injector between the distribution pipe locking portions of the detachment preventing means, wherein the injector locking portion are aside of the circumferential surface of the fuel injector; and

broadening an interval of the distribution pipe locking portions by deforming, and engaging each of the distribution pipe locking portions with the circumference of the fuel outlet port by force of the distribution pipe locking portions.

8. A fuel supply unit for an engine including at least one cylinder, comprising:

a fuel distribution pipe for distributing fuel, the fuel distribution pipe including a pair of engagement parts extending in a radial direction on an outer circumference thereof;

a fuel injector for injecting into the cylinder the fuel

supplied from the distribution pipe, the fuel injector including an engagement part extending on an outer circumference thereof in a direction perpendicular to a longitudinal axis of the fuel injector;

a clip for coupling the fuel distribution pipe and the fuel injector, the clip including a pair of pipe locking parts engaged with the engagement parts of the fuel distribution pipe at top ends thereof and extending in a longitudinal direction of the fuel injector, and the clip further including an injector locking part unitarily connecting bottom ends of the pipe locking parts at a bottom side of the engagement part of the fuel injector and continuously extending in a direction perpendicular to the longitudinal axis of the fuel injector within an angular range of less than one half of a circumference of the fuel injector.

9. The fuel supply unit according to claim 8, wherein the injector locking part is spaced a predetermined distance from the bottom side of the engagement part of the fuel injector.

10. The fuel supply unit according to claim 8, wherein the fuel injector includes a pair of flat side walls in parallel with each other and arcuate side walls between the flat side walls, the pipe locking parts face the flat side walls respectively, and the injector locking part continuously surrounds only one of the arcuate side walls in a circumferential direction of the fuel injector.